



February 2001

# Envision

*a cleaner environment*

## Arnold Engineering Development Center Installation Restoration Update

A publication for  
Coffee and Franklin  
county residents

*Environmental  
Public Affairs*

*Arnold AFB,  
Tennessee*



**NEW EPA REPRESENTATIVE** -- Doyle Brittain, EPA regional project manager (left) introduces his replacement, Julie Corkran (right) to Col. P.D. Eagan, AEDC Director of Support, and Jim Nicholson, ACS general manager. Ms. Corkran replaces Brittain as the EPA Region IV project manager for Arnold AFB.

## Landfill gas system becomes operational

Construction of 11 trenches at the Coffee County Landfill was completed in January and the entire upgraded interior landfill gas system should be operational in February. Eight of the trenches were finished in December and the remaining three near the Coffee County Central High School were completed in January during the evenings and when school was not in session.

The gas collection system is already operational at some of the trench sites removing methane gas from the landfill and transporting it to the existing landfill flare where it is burned. These trench sites add to the existing capability of the extraction system in place on the landfill perimeter.

CH2M Hill is AEDC's representative and resident engineer while work on the trench network construction project is being accomplished by Roy F. Weston, Inc., of Georgia.

"The interior landfill gas collection system is being integrated with the perimeter landfill gas collection system that is already in place," said Clark Brandon, deputy chief of the environmental management division. "The two collection systems are being operated as one landfill gas extraction system."

The landfill gas collection trenches are 10-15 feet deep, 600-feet long and are spaced approximately 300-350-feet apart at the landfill. The interior trenches penetrate into

### ***CAB meets April 17***

The next Arnold AFB Community Advisory Board meeting is set for 4:30 p.m., Tuesday, April 17 at the Oak Restaurant, 947 Interstate Drive in Manchester.

Members of the public are welcome to attend the CAB meetings.

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# AEDC takes to the air to film sites

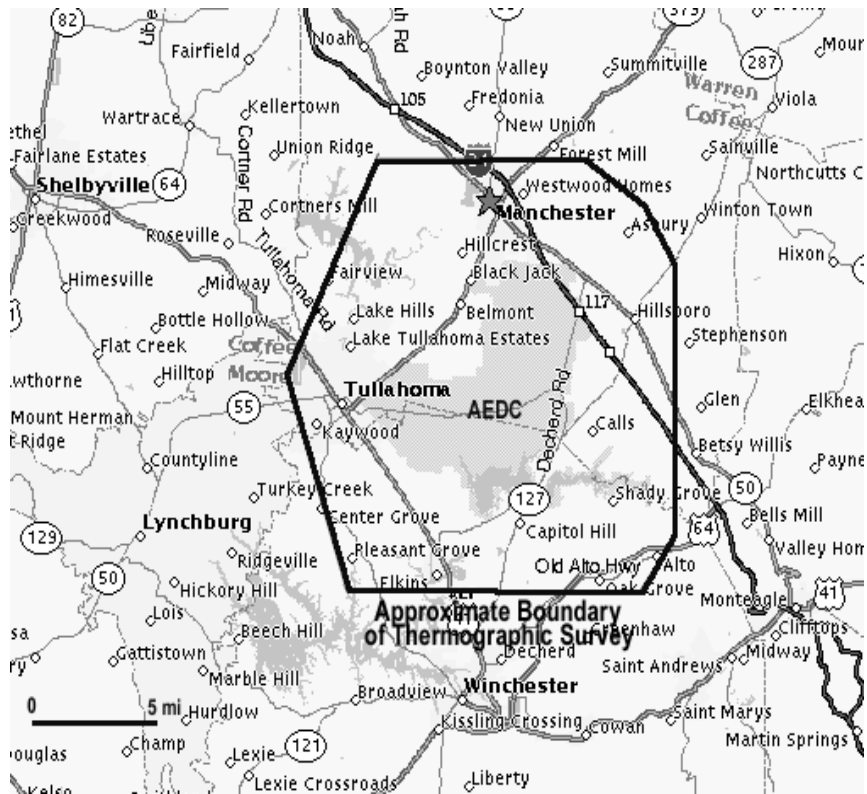
Arnold Engineering Development Center mapped approximately 180 square miles by air using infrared thermography to identify potential springs in areas surrounding the base. The data was collected in January 2000 utilizing a Cessna twin-engine airplane.

"The survey area had Arnold AFB as the center point and extended to potential groundwater discharge locations on and off the base," said Clark Brandon, deputy chief of the environmental management division. "The survey cost \$300,000 for planning, data collection, field verification and sampling."

The infrared thermographic sensors detect temperature differences as fine as 0.1 degrees centigrade within an area as small as one meter in size. Groundwater near Arnold Air Force Base runs about 14 degrees centigrade year-around so springs appeared as warm areas on the thermographic images.

According to Mike Singer, of CH2M Hill program chief, approximately 600 potential springs (most of which were previously unknown) were found using the thermographic images. One hundred were field-verified, and 40 have been sampled. In one area, a series of springs discharging 20 cubic feet per second (9,000 gal. per minute) were found that were previously unknown.

"These springs represent important groundwater monitoring points for AEDC's restoration program," Brandon said. "Spring discharges are also reliable indications of water levels and have been used to refine groundwater contour maps of the area."



**SCHOOL RECYCLING** — Three eighth grade students from Coffee Middle School in Manchester, Jessica Williams, Jennifer Spears and Emily Shelton, sort recyclable paper and cardboard during their Tuesday school recycling day. AEDC donated 30 desk-side recycling bins and several larger blue recycling bins to the school to help them with their recycling program. The bins have improved the sorting process and provide a visible reminder of the school's commitment to recycling. Students at the school assisted by parent volunteer, Pam Gold, have been recycling paper and cardboard for several years.



**COCKPIT VIEW** -- Community Advisory Board (CAB) member, Ms Phyllis Adams, gets a first-hand look at a F-117 cockpit during the AEDC Civic Leader Tour at Holloman AFB, N.M. The tour conducted during Nov. 2-3 also visited Kirkland AFB, N.M.

### Did you know?

- < That in 1989 Americans used 80 billion aluminum cans and recycled a record 60 percent of them?
- < That three species of wildlife become extinct every day?
- < That a room air conditioner can use up to 20 times the energy of a fan?
- < That if every commuter car carried just one more passenger, we would save 600,000 gallons of gasoline every day?
- < That for every degree you set your thermostat above 68 degrees Fahrenheit, your heating costs increase by five percent?
- < That the U.S. loses an acre of forest every five seconds?
- < That a single edition of the Sunday New York Times newspaper uses 75 thousand trees?

## ECAMP logs no significant findings

There were no "significant" findings recorded during the recent internal Environmental Compliance Assessment and Management Program (ECAMP) which ended Nov. 17. Of the 89 findings logged, none required immediate action to prevent harm to health, safety, the environment, or the test mission.

Minor findings included containers not properly labeled or without labels, incompatible materials in flammable storage cabinets, unsecured containers, and uncovered containers.

Fifteen teams involving 46 Air Force environmental and industrial hygiene employees participated in the inspection, which was conducted between Nov. 6-17. The teams inspected 71 zones comprised of over 200 buildings/areas both on and off base.

Team leaders were Hunter Beavers, Bing Bragg, John Casey, Jennifer Dougherty, Ron Everett, Lt. Ross Gleason, Jim Hicks, Jeff Holt, Mike Hunter, Bill McEntee, Letha McEntee, Bob Mitchell, Ben Partin, Lt. Bill Waldron, and Brett Weaver. All teams evaluated 13 different environmental media areas including air emissions, cultural resources, hazardous materials, hazardous waste, natural resources, pesticides, POL (petroleum, oils and lubricants), solid waste, storage tanks, toxic substances, wastewater, water quality, and other issues (pollution prevention, environmental impact analysis, installation restoration program and program management.)

The number of findings is only slightly higher than the number of

findings identified during the 1999 internal inspection, in which 83 findings were logged.

Findings will be distributed through management to the finding owners in mid-December. Finding owners will be required to develop and implement corrective action plans. Findings will be tracked by the AEDC environmental management division until corrective actions are completed. The next ECAMP inspection will be held in August 2001 and will be an external one, conducted by external auditors from Air Force bases across the country.

The environmental staff greatly appreciates the cooperation of the many AEDC facility points-of-contact who assisted the environmental officials in completing the ECAMP inspection.



# Landfill...

(Continued from page 1)

the landfill refuse and draw landfill gas from the waste by inducing a negative pressure or vacuum.

"After each of the trenches were excavated and installation of piping completed, the trenches were fitted with a geomembrane, covered with gravel and back filled with soil," Brandon said. "The system then when through an integrity test to make sure all the pipe connections are sound."

According to Brandon, the project at the 97-acre landfill cost AEDC \$2 million. Design work on the trench phase was completed in May 2000 and construction started in August.

He said that extensive monitoring of methane in the soil has been conducted since January 1999 when methane was discovered in the neighborhood across Highway 55 and near the Coffee County Central High School. Soil probes were installed in areas north and west of the landfill to enable sampling of the methane. Methane sampling also was conducted in private drinking water wells.

Discovery of this methane resulted in a gas extraction system being installed along the north and west perimeter of the landfill to prevent migration of additional methane offsite and to pull back methane that had already migrated off the landfill.

A permanent flare system installed in January 2000 burns the methane gas off the gas extraction system and the new interceptor trenches.

The landfill was under management of the Coffee County Joint Landfill Commission and operated from 1971 to 1989 under a lease agreement from the Air Force.



*Workers install a pipe extraction system at one of the trenches at the Coffee County Landfill. All 11 trenches are completed and the entire system will be operational in February.*

## Bob Dean becomes member of CAB

Bob Dean of Estill Springs is a new member of the Arnold Air Force Base Community Advisory Board. He was elected during the CAB meeting of Nov. 17 in Tullahoma.

Dean replaces Jack Turner who left the board in October of 2000 when his term expired.

Dean is the Estill Springs water commissioner and also serves as an alderman and vice mayor of the city.

He is a retired Sears manager and has lived in Estill Springs since 1986. During the Korean War, he served with the 2nd Infantry Division.

He and his wife Mary live in Estill Springs. They have four children

and eight grand children.

Dean will represent the Estill Springs and Franklin County residents on the CAB.

He joins the 10 other members of the CAB who are Stephen Cope, Community Co-chair; Clark Brandon, AEDC Co-chair; Ms Phyllis Adams, representing Manchester; Ted Hackney, Manchester; Ms Anna Johnson, Tullahoma; David Griffith, Tullahoma; William Prince, Winchester; Joe Addair, Franklin County; William Roberson, Lake Normandy Area; and Dennis Ham, representing Manchester.

Next CAB meeting is April 17 at the Oak Restaurant in Manchester

# HMMS saves AEDC \$\$\$ *Recycling works!!*

AEDC saves thousands of dollars each year by using the Hazardous Material Management System (HMMS) by tracking and managing the use of hazardous materials on base. This automated software program has been in operation at AEDC since 1993.

"Here at AEDC we have four distribution points that support HMMS, two for ACS and two for Sverdrup," said 1st. Lt. William Waldron, AEDC compliance officer. "These distribution points are placed in area's that have the most hazardous material traffic."

HMMS tracks training, exposure, inventory and personal protective equipment; dispenses hazardous materials; and is the central issue point for control of hazardous materials. The system is also being used for reporting requirements as it shows how much of a certain chemical was used at any certain time and place anywhere on base.

"Our pharmacy also supports HMMS," said Kelly Dawson, hazardous materials manager. "When hazardous material is received it is then brought into HMMS system and labeled."

According to Dawson, the labels are applied to hazardous material containers allowing HMMS to track the container to the user. When the user no longer has a need for the material it is returned to the distribution point and restored or turned in as empty. This lets HMMS track current inventory and avoid over stocking materials.

HMMS provides a means to improve efficiency of operations while, at the same time, producing a safer

workplace. Tangible benefits of HMMS include improved management of shelf-life items; reduced employee exposure to hazardous materials; improved visibility of actual usage and requirements; and reduced hazardous waste disposal costs.

"It provides the base with a unique and revolutionary tool to support pharmaceutical issue and receipt of hazardous material," Waldron said. "It also improves hazardous material visibility and allows for significant reduction in wasted material that results in substantial savings to Arnold Engineering Development Center."

"It is the tracking tool AEDC uses to comply with regulatory requirements from the Environmental Protection Agency, the Occupational Safety and Health Act (OSHA) and the federal facilities compliance act," he said.

Thanks to you recycling is working. Over the past six years, Americans have increased recycling by nearly 70 percent. Not only is more paper, plastic, steel, aluminum and glass being recycled, but opportunities are opening up for even more products to be recycled, including rechargeable NiCd batteries, scrap tires, organic waste and consumer electronics.

And what is equally exciting and important to the long-term viability of recycling is that these collected and recycled materials are being made into all sorts of everyday products and packages, which are available on the market right now.

Most Americans help the recycling effort by putting materials in their bin or taking them to a drop-off center. To close the loop, we must now buy recycled goods.



**FOR SERVICE RENDERED** — Col. P. D. Eagan, AEDC Director of Support, presents Doyle Brittain with an AEDC Medallion at the Dec. 14 CAB meeting. Brittain served as the EPA Region IV project manager for Arnold AFB for the past two years.



## AEDC sees drop in use of hazardous chemicals

Complying with federal and Air Force environmental goals, AEDC has cut the use of hazardous materials over the past two years. AEDC's efforts helped the Air Force exceed federal goals by 79 percent in 1999.

Executive Order 12856, "Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements," signed in 1993 directed federal agencies to reduce toxic chemical releases by 50 percent from 1994 to 1999.

"AEDC has addressed reducing hazardous materials usage since 1990," said Lt. William Waldron, environmental compliance officer. "Chemicals such as toxic, ozone depleting substances, and chemicals listed under Air Force Materiel Command's (AFMC) top ten hazardous list have been cut sharply."

As an example, he said AFMC set an initial goal to reduce fiscal year 1998 usage of AEDC's top ten hazardous materials by four percent per year. In fiscal year 1999, AEDC reduced the use of these materials by 46 percent and an additional 28 percent in fiscal year 2000.

"The most common chemicals used at AEDC whose usage has been reduced include trichloroethylene, nitric acid, ethylene glycol and Freon," Waldron said. "Applications of these materials include heat transfer, chemical cleaning and deicing."

Examples of pollution prevention efforts at AEDC to reduce usage of these and other hazardous materials during the past five years include: introduction of a batch pre-

cision cleaning unit for Freon use at the Model Shop; substitution of Towerbrom for chlorine at the Aeropropulsion Systems Test Facility (ASTF) cooling towers; base-wide reduction of solvent-based paints; use of reclamation units for ethylene glycol and propylene glycol at the Motor Pool and other base locations.

Other efforts include elimination of chrome plating at the Model Shop; installation of advance silver recovery systems at the Photo Lab; substitution of propylene glycol for ethylene glycol in base-wide Heating Ventilation and Air Conditioning (HVAC) units; and the use of environmentally-safe alternative for toxic pesticides.

Executive Order 12856, "Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements," signed in 1993, directed federal agencies to reduce toxic chemical releases by 50 percent from 1994 to 1999. Accord-

ing to Air Force environmental sources, the Air Force including AEDC exceeded these federal environmental goals by achieving a 79 percent reduction in the use of hazardous materials in 1999.

"The ultimate goal is to cut the use of hazardous materials being used at AEDC to as near zero as possible," Waldron said. He credits past reduction successes to a number of factors, including base-level pollution prevention training and awareness, and operation of the base hazardous materials pharmacy.

The environmental management division at AEDC is responsible for conducting pollution prevention assessments in shops that use hazardous materials and then finding ways to reduce the base's dependence on those chemicals.

"Each facility at AEDC should be proud of the accomplishment this demonstrates," said Lt. Waldron.



**WELCOME TO THE CAB --** Stephen Cope, CAB community co-chair, presents Julie Corkran, new EPA project manager for AEDC, with the traditional AEDC coffee cup as outgoing EPA project manager, Doyle Brittain (left) and CAB AEDC co-chair, Clark Brandon, look on. Ms. Corkran assumed her duties in December 2000. She has 10 years of hazardous waste site cleanup experience with the EPA and a two-year stint in public health issues at DoD hazardous waste sites with the Agency for Toxic Substances and Disease Registry. Ms. Corkran graduated from Emory University (M.S. in Ecology) and has a Ph.D in Aquatic Ecology from Kent State University.

# Status report on IRP sites

The status of all 24 installation restoration program sites as of January 31, 2001. Ten sites have been closed and no further action is planned.

**Site 1, Landfill 2 and leaching pit 2:** Construction of a \$1.56 million modified clay cap with a geosynthetic clay liner was completed in November 1997. Groundwater treatment facility treats approximately 1,700,000 gallons of water per month. Private water wells were sampled west of airfield as a precautionary measure. Site investigation plan being prepared.

**Site 2, Retention reservoir and J-4 draining area and Site 11, chemical treatment pond:** Preparing site investigation plan.

**Site 3, Landfill 4:** Construction of a \$2.1 million cap completed in November 1998. Groundwater treatment facility treats about 17,000 gallons of water per day. Permanent gas ventilation system installed in January 2000. Private wells in area sampled. Construction of 11 trenches completed in February 2001. Site investigation plan being prepared.

**Site 4, Surface drainage, Bradley Creek:** Site investigation plan being reviewed.

**Site 5, Surface drainage, Rowland Creek:** No further action based upon the RCRA facility assessment.

**Site 6, Camp Forrest water treatment plant:** Corrective measure study underway included sampling of private water wells in Spring Creek area. Interim corrective measure in the form of a groundwater treatment facility that treats about 400,000 gallons of water per month. A waterline from Estill Springs was completed in April for residents in this area. Corrective measures study being prepared.

**Site 7, Main test area:** Corrective measure study underway. Interim corrective measure in the form of a groundwater treatment facility in operation.

**Site 8, Leaching pit no. 1:** Corrective measure study underway. Groundwater treatment facility and solvent/water separator brought on-line in May. Interim corrective measure in the form of a groundwater treatment facility in operation. Supplemental site investigation plan being prepared. Private water wells east and southeast sampled as a precautionary measure.

**Site 9, Surface drainage-Brumalow Creek:** Additional effort will include long-term monitoring. Site investigation plan being reviewed.

**Site 10, Fire Protection Training Area 2, Landfill 1, Burn area 2:** Site investigation plan being reviewed.

**Site 12, Retention leach/burn area:** An interim corrective measure to biologically treat soils and RCRA facility investigation is complete. Site investigation plan being reviewed.

**Site 13, Fire Protection Training Area:** Proposed for no further action.

**Site 14, Surface drainage-Crumpton Creek:** Proposed for additional sampling and long-term monitoring. Site investigation plan being reviewed.

**Site 15, High energy fuel burn/burial area:** No further action based upon completed confirmatory sampling results.

**Site 16, Beryllium leaching area:** No further action based upon completed confirmatory sampling.

**Site 17, Burn area no. 2:** No further action based upon completed confirmatory sampling results.

**Site 18, Building 1421 area:** This site is proposed for no further action based upon confirmatory sampling results.

**Site 19, Camp Forrest area:** Thirty six monitor wells installed at nine former Camp Forrest gasoline stations/motor pools. A site investigation work plan for Camp Forrest is being developed.

**Site 20, Steam plant ash pits:** Site investigation plan being reviewed.

**Site 21, Three hazardous waste storage buildings and one non-hazardous waste storage building:** No further action on all four buildings. These were previously permitted storage units that underwent RCRA closure.

**Site 22, Main Test Area:** Some areas required more study and some areas are no further action. Corrective measure study work plan being prepared. Final site investigation plan being reviewed.

**Site 23, Salvage yard:** No further action.

**Site 24, Camp Forrest Asbestos Area.** No further action.